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ABSTRACT

A study investigated whether instructors need to undertake in-depth training in miscue analysis as reflected in the Reading Miscue Inventory (RMI) to carry out competent evaluations of children's reading ability, or whether training in the Reading Appraisal Guide (RAG) can be equally effective. The study was carried out at Melbourne College in Victoria, Australia, in 1983-84. Data collected included (1) assessments of children's taped readings by two groups of 10 teachers before (pretest) and after (posttest) their respective training programs in the RMI and RAG, (2) anecdotal records of teachers' views, and (3) teachers' practice assessments of children's reading. Quantitative analyses of the pretests and posttests showed that teachers trained in the RMI made significantly better assessments of children's reading than did teachers trained in the RAG. These results were supported and expanded by teachers' written and oral statements made during the pretest, posttest, and training programs. Findings also showed that, although the RMI is complex and time consuming, attempts to make it quicker and easier decrease the instrument's value. Finally, results indicated that effective training in the RMI can be provided in graduate reading programs. (Specific recommendations for graduate reading programs are included.) Six pages of references are included. (Author/JD)

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THE EFFECTIVENESS OF READING MISCUE INSTRUMENTS

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A Research Paper
February 1986 No. 13

Program in Language and Literacy

Arizona Center for Research and Development
College of Education
University of Arizona

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ABSTRACT

The purpose of this study was to discover whether teachers needed to undertake in-depth training in miscue analysis as reflected in the Reading Miscue Inventory (RMI) in order to carry out competent assessments of children's reading ability, or whether training in the Reading Appraisal Guide (RAG) could be equally effective.

Three types of data were collected: assessments of children's taped readings by two groups of teachers, before (pretest) and after (posttest) their respective training programs in the RMI and RAG; anecdotal records of the teachers' views and their practicum assessments of children's reading.

Quantitative analyses of pretest and posttest showed that teachers trained in the RMI made significantly better assessments of children's reading than did teachers trained in the RAG. Qualitative analyses of the teachers' written and oral statements made during the pretest, posttest and training programs supported and expanded the quantitative results.

It was concluded that effective training in the RMI can be provided in graduate reading programs. Although the RMI is complex and time consuming, an attempt to make it quicker and easier to use has resulted in a less valid instrument.

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THE EFFECTIVENESS OF THE READING MISCUE INSTRUMENTS

Teacher Education and Reading Evaluation

The publication of the Reading Miscue Inventory (Y. Goodman & Burke, 1972) was a landmark in the teaching of reading because it brought miscue analysis within the reach of the classroom teacher. K.S. Goodman developed miscue analysis as a research technique to get at readers' underlying strategies by examinig their oral reading performances. He devised the Taxonomy of Cues and Miscues in Reading (K.S. Goodman, 1969) to help him in the search for an understanding of reading, and the construction of a model of the reading process.

The reading Miscue Inventory was designed by Y. Goodman and Burke (1972) as a means of applying miscue analysis research to the classroom. It employs a simplified form of the Goodman Taxonomy to analyze pupils' oral reading, together with a retelling and questioning format for assessing their reading comprehension.

The Reading Miscue Inventory is more than just an assessment tool: its primary purpose is to enable teachers to gain an understanding of the reading process itself (Y. Goodman, 1982). Only when they are conversant with the reading model which underlies it, will teachers be able to make effective use of the Reading Miscue Inventory as a diagnostic instrument (Y. Goodman & Burke, 1976 Goodman & Goodman, 1977).

The Problem

Although the Reading Miscue Inventory can provide a teacher with more information from a single reading performance than any other measure, it is undeniably complex, and effective training in its use is both exacting and time-consuming. This poses a problem for teacher educators, and many have wondered whether it would be possible to streamline the procedures without detracting from the instrument's effectiveness (Williams & Young, 1974).

Over the past decade a number of attempts have been made to simplify the Inventory. However, these have been done by teachers and researchers who are already familiar with in-depth miscue analysis and have sufficient understanding of language and reading to gain information they need from simplified forms (K.S. Goodman 1972). For many teachers this may not be so. Y. Goodman & Burke (1976, p. 3) stated that:

> A simpler form cannot be supplied until someone has initiated the concepts of miscue analysis because the concepts involved are usually new to preservice and inservice teachers, and new concepts often seem overly complex. There is no simple road to new and complex ideas.

The purpose of this study is to test Goodman's & Burke's hypothesis by attempting to discover whether teachers need in-depth

training in miscue analysis, as reflected in the Reading Miscue Inventory, in order to carry out competent assessments of children's reading ability, or whether training in one of its simplified forms is equally effective.

This is done by examining differences in the effectiveness of two graduate reading programs:

1. Training in the assessment of reading such as might reasonably be provided in a standard graduate college course, with practice in the use of the Reading Appraisal Guide, a modified version of the Reading Miscue Inventory.

2. Training over the same period of time in the use of the Reading Miscue Inventory.

Research questions are considered both quantitatively and qualitatively. The quantitative questions addressed are:

1. Do the members of the group using the Reading Miscue Inventory significantly improve their scores on an evaluation of their assessments of two readers between the pretest and posttest?

2. Do the members of the group using the Reading Appraisal Guide, a simplified form of the Reading Miscue Inventory, significantly improve their scores on an evaluation of their assessments of two readers between the pretest and the posttest?

3. Do the scores of one group improve significantly more than the scores of the other group between the pretest and the posttest?

The qualitative questions addressed are:

1. What indications are there during the program of changes in the teachers' knowledge and application of miscue analysis techniques?

2. What presuppositions and values concerning reading do the teachers bring to the program and how do these change during the program?

Trends in Teacher Education in Reading

It is the responsibility of teacher educators to help their students develop sound theoretical bases of reading upon which they then build appropriate instructional and assessment strategies. National surveys of teacher preparation courses in reading (Austin & Morrison, 1963; Harste, 1977) have shown consistent failure to do this adequately. Harste et al (1976) and Burke (1979) noted that reading courses are often limited to an introduction to some current methods for teaching and testing and that little attention is paid to examination of theoretical models or the findings of applied research. Their views are supported by a perusal of Rude's (1981) questionnaire

for evaluating elementary teachers' knowledge of reading, and instrument validated nationally by 46 professors currently engaged in teaching and research in reading. Most of the 52 questions are concerned with methodology. Only three relate to reading theory.

Teachers' practices in teaching reading are strongly influenced by published eductional materials. Spache (1972) found that over 90% of primary teachers used basal readers, and in 70% of classes, these were the only reading programs used. Durkin (1981) examined five major basal reading schemes and observed a far heavier emphasis on practice and assessment of reading skills than on comprehension. Extensive surveys by Harste (1977) and Y. Goodman and Burke (1976) also found that teachers showed more concern for reading skills than for comprehension.

However, Carroll & Walton (1979) have noted widespread controversy at every level of the educational hierarchy between supporters of skills-based approaches to teaching, and whole language, comprehension oriented approaches. Froese (1982) in a national survey asked professors in graduate faculties in reading to name the most influential theorists and practitioners in their discipline. The most frequently cited theorists were Frank Smith and Kenneth S. Goodman, while Jeanne Chall was the most popular practitioner.

It is difficult to reconcile these choices. Jeanne Chall (1979) believes that beginning readers benefit most from a structured, skills-based approach which emphasizes phonics and vocabulary drill to facilitate word-by-word "decoding" of carefully controlled texts from print to speech. Only after they have learned to decode automatically should readers turn their attention to meaning.

In contrast, K. Goodman (1979b) and Smith (1971) see reading as a comprehension-centered process which children learn (by much the same means as they learn oral language) through interaction with the written language in their environment (Goodman and Goodman, 1981). The teacher's function is to create a literate classroom atmosphere that will stimulate reading and writing development (Smith & K. Goodman, 1971).

On balance, it appears that there is considerable interest among educators in the recent developments in reading theory. In practice, however, teacher education courses, published reading materials and many teachers seem to be largely concerned with the minutiae of a traditional skills-oriented methodology.

The research of both K.S. Goodman and Y. Goodman has been expressly undertaken to provide a model of reading and help teachers gain a strong, comfortable base from which to make instructional decisions (K.S. Goodman, 1972, 1979a). Y. Goodman and Burke's (1972, 1976) Reading Miscue Inventory has helped provide teachers with such a base. There is evidence that it can exert a powerful influence on teachers' theoretical orientations as well as their classroom practices.

Interrelation of Teacher's Beliefs, Classroom Practices and Training

Studies by Steinruck (1975) and DeFord (1982) showed that teachers' theoretical orientations correlated highly with their teaching practices. Graham & Hudson (1978) and Mitchell (1978) also found that teachers' beliefs about reading affect their teaching practices, and both are strongly influenced by their training.

Five studies using the Reading Miscue Inventory, have attempted to assess the effects of training in miscue analysis on the theoretical orientations and classroom practices of teachers. Feely has carried out two studies on the effects of such training on graduate teachers. The first (Feely, 1977) found that use of the Reading Miscue Inventory modified teaching strategies, and the second (Feely, in preparation) indicated that teachers approved of the instrument, although they found it time-consuming to use.

Jongsma's (1978) study showed that training in miscue analysis influenced teachers to make more positive assessments of children's reading. Giessel & Knafle (1972) found that training in miscue analysis made teachers more concerned about meaning changes in children's reading and more tolerant of dialect differences.

A study by Steinruck (1975) found that instruction in miscue analysis changed teachers' views from seeing reading as a series of exact skills to seeing it as an ongoing process involving interaction between thought and language. Teachers' instructional procedures after the training workshop showed greater focus on comprehension, and increased emphasis on helping children to make more use of syntactic and semantic cues to determine unknown words in reading.

These eight studies included undergraduate and graduate teachers, covered a range of courses, and used widely differing methods of analysis. Despite these differences, it is possible to make the following inferences from their results:

1. Teachers' theoretical orientations influence their teaching practices.

2. Teachers' theoretical orientations are influenced by their training.

3. The Reading Miscue Inventory exerts a markedly strong influence on both the theory and practice of teachers who have used it in teacher education classes or inservice workshops.

These inferences are of particular relevance to the present study, for they indicate that the Reading Miscue Inventory exerts a considerable influence on those teachers who have been properly trained in its use. The question answered is whether a simplified form of the Reading Miscue Inventory can exert an equally useful influence.

The Goodman Model of Reading

It has been shown that the Reading Miscue Inventory is an effective training and assessment instrument, because it helps teachers understand the reading process as well as develop sound teaching strategies based on an in-depth assessment of their pupils' needs.

K.S. Goodman (1984, pp. 96,97) characterized reading as "a psycholinguistic guessing game involving tentative information processing" which "...makes the role of the reader a highly active one. It makes what the reader brings to the text as important as the text itself in text comprehension."

His research indicates that during this process, readers do not read every word. They sample the print, selecting significant features and using their knowledge of the graphophonic, syntactic and semantic systems of language to fill in the gaps. They test their guesses, or predictions, by further sampling and by deriving meaning from the text they have decoded. If their predictions are not confirmed, i.e. if the message does not make sense, then good readers will repeat the process to give a meaningful, but not necessarily word-for-word, rendering of the text. Only when the have gained meaning from this interaction of the graphic display and their own knowledge and experience, will proficient readers be satisfied. (K.S. Goodman, 1967, 1972, 1982).

All this occurs rapidly and mainly without conscious attention. Readers are unaware that they are not reading every word or that they are using rules of language so complex that they cannot describe them precisely.

Miscue Analysis

K.S. Goodman's tool for his reading research was the Taxonomy of Cues and Miscues in Reading (K. Goodman, 1969). It enabled detailed comparisons to be made between an OR (observed response) and the ER (expected response) of oral readers over 28 categories of miscues, in order to discover what strategies readers were using to gain meaning from print (Goodman & Goodman, 1978). From the taxonomy Y. Goodman and Burke (1972) developed the Reading Miscue Inventory (RMI). The complete kit includes tapes of children's readings, coding sheets, and a selection of reading texts. The manual provides an outline of the reading process, directions for assessment and suggestions for instructional strategies.

In a partial revision Y. Goodman and Burke (1976) have expanded the instructions for conducting the retelling and questioning, and streamlined the coding of miscues. It has now been reduced to 7 categories and is carried out at both word and sentence level (see Appendix I). A further revision (Y. Goodman, Watson, & Burke) is in press.

Modifications of the Reading Miscue Inventory

If imitation is the sincerest form of flattery, Y. Goodman and Burke should be feeling flattered. This investigator has so far located and examined 15 published modifications of their Reading Miscue Inventory and is aware of a number of unpublished versions. Most of them are American born, but they have also appeared in Canada, Great Britain, and Australia.

These modifications can be divided into three categories:

1. Attempts to synthesize the Reading Miscue Inventory and the informal reading inventory (IRI).

2. Attempts to combine miscue analysis and cloze procedures.

3. Attempts to simplify the Reading Miscue Inventory.

Table I provides a summary of the modifications.

CRITERIA FOR A MODIFIED FORM OF THE RMI. Because the main purpose of this study is to compare the effectiveness of the Reading Miscue Inventory with that of a modified version, the investigator developed the following set of criteria for selecting the latter, to ensure that it was compatible with the Goodman model of reading and reflected the rationale of miscue analysis:

1. The inventory should be a simplified rather than an alternative form of the Reading Miscue Inventory.

2. The term "miscue" rather than "error" should be used to describe observed responses that differ from the text.

3. The instructions should be sufficiently clear and detailed for a teacher to follow without recourse to the RMI itself.

4. The miscue analysis and retelling should be based on the reading of a single, complete narrative or exposition.

5. The passage read should be long enough to generate at least 25 different, non-dialect miscues.

6. There should be provisions for both process (comprehending) and product (comprehension) scores.

7. Comprehension assessment should be based on retelling and subsequent questioning.

8. The author should provide a rationale for the use of the instrument, and evidence of validation through field testing or research.

Table 1

Summary of Modifications of the Reading Miscue Inventory.

Author and Title	Rationale	Oral Reading	Comprehension	Comments
1. Syntheses of the Reading Miscue Inventory (RMI) and Informal Reading Inventory (IRI)				
Bean (1979) Miscue Mini-form	IRI/RMI synthesis; basis: Goodman RMI, Page (1975), F. Smith (1971)	Self-correction, preservation or disruption of meaning; record sheet	No instructions; examples of questions	Brief, unclear directions; examples provided; suggestions for instruction
Christie (1979) Qualitative Analysis System	IRI/RMI synthesis; basis: Goodman RMI, Pikulski (1974)	Graphic similarity, context acceptability and self-correction; record sheet	No instruction or examples;	Brief directions; uses term "error"; reading strategy lessons suggested
Siegal (1979) Adapted Miscue Analysis	IRI/RMI synthesis; basis: Goodman RMI; F. Smith (1971), author's experience	Miscues and misses, letter-sound, grammar, meaning and dialect; record sheet	Retelling indicated but no instructions provided	Fair directions for oral reading; 100-200 word passage; retains IRI reading levels
Smith & Weaver (1978) Easy Method	IRI/RMI synthesis; basis: Goodman RMI, Pikulski (1974)	Semantic/syntactic acceptability and self-correction; record sheet	Retelling directions given;	Detailed examples; complicated scoring procedures; suggestions for remediation
Tortelli (1976) Simplified Psycholinguistic Diagnosis	IRI/RMI synthesis; basis: Goodman RMI	Acceptable language (grammar) and meaning miscues totaled	No instructions or examples	Brief directions and examples given for oral reading only

Table 1. Continued

Author and Title	Rationale	Oral Reading	Comprehension	Comments
	2. Combined Reading Miscue Inventory and Cloze Procedure			
Anderson (1980) New Miscue Analysis	Oral cloze miscue analysis; basis: Goodman RMI, author's research	Comparison of oral and silent reading of a series of short (140-word) cloze passages		Pilot study only
Aulls (1979) Qualitative Analysis of Silent and Oral Reading	Oral-silent reading measure; basis: Goodman RMI, Pikulski (1974)	Oral fluency (weighted scores) semantically acceptable miscues, self-correction	Silent reading cloze assessed for structure and content miscues, self-correction	1,000 word passages divided for oral reading-silent cloze; write to author for directions
Cambourne (1979) Cambourne Reading Analysis Procedure	Miscue analysis in silent reading; basis: Goodman (1969b), author's research	none	silent cloze test for miscue analysis; grammatical, semantic, meaning approximation	Alternative form of miscue analysis
McLean (1979) Qualitative Analysis of Silent and Oral Reading	See Aulls	Oral fluency; semantically acceptable miscues and self-correction	See Aulls	See Aulls
Page (1975) Post Oral Reading Cloze	Miscues predict comprehension; basis: Goodman (1969b), author's research	Altercues, supercues, entropicues, pseudocues, as predictors of comprehension levels	Silent cloze exercise on passages previously read aloud	Pilot study only ; scores adjusted for for more accurate comprehension

Table 1. Continued

Title and Author	Rationale	Oral Reading	Comprehension	Comments
	3. Simplified Forms of the Reading Miscue Inventory			
Brennan (1979) Brennan Record for the Interpretation of Miscues	Simplified miscue analysis; basis: Cambourne (1978), Brennan's field testing	Graded passages; semantic, grammatic acceptability, graphophonic proximity; record sheet	No instructions or examples; retelling indicated	Very thorough for oral reading and interpretation; good examples, instructional strategies
Griffin & Jongsma (1980) Adaptation of RMI	Alternative to RMI basis: Goodman RMI	Oral reading evaluated at word and sentence level; numerical score	Detailed instruction; five stages for administering and scoring	Concerned mainly with retelling
Hood (1975-76) Qualitative Analysis of Oral Reading Errors	Interrater reliability; basis: Goodman RMI, IRI	Categories: order, stem, affix, sub, nonsense, insert, omit, skip, punc.	Not included	Concerned with reliability rather than analysis; uses term "error".
Johnson (1979) Reading Appraisal Guide	Simplified miscue analysis; basis: Goodman RMI, author's case studies	language, meaning and correction as % of total miscues; record sheet	Retelling assessed from prepared outline; little detail given	Brief directions for assessment; initial discussion of reading theory; instructional strategies suggested
Potter (1980) A Modified Form of Miscue Analysis	Discrimination between graphic and context clues; basis: Goodman RMI	Coding as for RMI and random list of passage words read and coded	No instructions or examples	Alternative rather than a simplification of RMI

SYNTHESIS OF THE RMI AND IRI. The informal reading inventory (IRI) was first developed by Betts (1946) as a "subjective reading inventory" in which a child's reading level could be assessed from his ability to read a passage aloud and respond to questions about it.

Scoring is based on the percentage of words read accurately and questions answered correctly. From these, the readers' oral reading and comprehension are judged to be at Independent, Instructional or Frustration level. These levels are based on Bett's (1946) own criteria, but there appears to be no empirical evidence for them. (K.S. Goodman, 1982; Pikulski, 1974; Pikulski & Shanahan, (in preparation).

IRIs rely on questions to assess reading comprehension. Studies by Ryan (1979) and Sadoski (1982) have found no significant differences in the standard of responses to questions and retelling of a passage. However, much depends on the quality of the questions. There is evidence that many IRI questions can be answered without reading the passages at all (Allington et al., 1977) and different sets of questions for the same passages can alter children's alleged grade levels considerably (Schell & Hana, 1981). The investigator has found that many teachers have problems setting valid questions, and believes that retelling, followed by probing questions, is a preferable strategy for assessing comprehension of a text.

The informal reading inventory has also been criticized for the shortness of its passages (Menosky, 1970; Williamson & Young, 1974). Longer passages allow readers to become familiar with the text and use redundancy clues to predict unknown structures. They also ensure sufficient miscues for a valid analysis (Y. Goodman & Burke, 1972).

The investigator examined five attempted syntheses of the RMI and IRI. (See Table I, Part I). She found that each failed to meet her criteria on at least two of the following grounds: the term "error" is used to describe miscues (Christie, 1979); scoring is hard to follow (Smith & Weaver, 1978); questioning replaces retelling (Bean, 1979); IRI scoring methods are retained (Siegal, 1979; Tortelli, 1976); no instructions for retelling are given (Christie, 1979; Siegal, 1979; Tortelli, 1976); no validation is provided (Bean, 1979; Christie, 1979; Smith & Weaver, 1978; Tortelli, 1976).

COMBINED RMI AND CLOZE PROCEDURE. The cloze procedure, developed by Taylor (1957) and extensively researched by Bormuth (1969, 1975) has been used as a measure of readability, a teaching strategy and an assessment technique.

Procedures consist of deleting every fifth, sixth or seventh word in a selected prose passage. The reader then reads the passage, supplying the missing words. The scoring usually consists of calculating percentages of replacements that are exactly the same as the original words, but in some studies non-exact replacements can be treated as miscues and analyzed in the usual way (Page, 1975; Cambourne, 1979; Carey, 1979; Anderson, 1980).

Studies by McLeod (1965), Bormuth (1969) and Carey (1979) found that results of cloze tests correlated highly with conventional comprehension tests. Hudson and Niles (1981) quoted Gilmore's (1951) and Spache's (1963) studies showing that matched cloze and oral reading tests correlated well.

The investigator examined five combined cloze and RMI procedures (See Table 1, Part 2). Although they appear to be valid assessment instruments, and three of them are based on careful research by their authors, she decided against using any of them because three (Anderson, 1980; Cambourne, 1979; Page, 1975) produce comprehending scores but not comprehension scores; one (Cambourne, 1979) only tests silent reading and two (Aulls, 1979; Mclean, 1979) require the reading of very long passages and provide no evidence to support their methods.

SIMPLIFIED FORMS OF THE RMI. Several attempts have been made to simplify the RMI by reducing the number of taxonomy questions and eliminating some the analytic procedures (See Table 1, Part 3).

The main problem for users appears to lie in the inadequacy of the instructions for either the miscue analysis (Griffin & Jongsma, 1980) or the retelling (Brennan, 1979; Hood, 1975-6; Potter, 1980). The lack of evidence of field testing or research to validate them is a serious drawback (Griffin & Jongsma, 1980; Hood, 1975-76; Potter, 1980).

Although the Reading Appraisal Guide (Johnson, 1979) provides rather limited instructions, it appeared to satisfy the investigator's other seven criteria, so it was chosen to be used in this study. A table comparing the two instruments is provided in Appendix A.

Research Design

The study was carried out at Melbourne College, Victoria, Australia, during the 1983 academic year, which continues through three terms from March to November.

Subjects

The subjects were 20 experienced teachers undertaking the one-year Graduate Diploma in Special Education in order to qualify for Special Teacher registration in the State of Victoria. They formed a diverse group, whose academic standing varied from high to "at risk". Their ages ranged from 25 to 46 and individual length of teaching service from 2 to 20 years. Eight were working in mainstream schools, nine in special settings and three were studying full time.

The three preschool and 13 primary trained teachers had all received some instruction in teaching reading, but the four secondary teachers had not. All had taught reading at some stage and had heard of the Goodmans' work, which they associated variously with whole language, language experience, reading for meaning and

psycholinguistics. Eleven were aware of the purposes and methodology of miscue analysis in a general way but nine knew very little about it. Two had used the Brennan Record for the Interpretation of Miscues (described in Table 1), but not regularly. None had used the Reading Miscue Inventory or the Reading Appraisal Guide.

Selecting and Taping Readings

The story selected for miscue analysis was "John, the Mouse Who Learned to Read" (Randall, 1974). This had already been used successfully with third grade readers in a Victorian Elementary School evaluation program (Weatherill, 1982). After taping and replaying readings and retellings of this story by some 30 third graders from a suburban elementary school, the investigator chose those of Justin and Tanya because they fulfilled the following criteria:

1. Their speech was free from impediment and they spoke the dialect that prevails in lower middle class suburbs of Melbourne.

2. Their reading was audible and intelligible and their reading speed within the average range.

3. They produced more than 25 miscues in their reading of the story.

4. They produced enough material in the retelling and questioning for the subjects to analyse.

5. Their respective miscues and interpretations of the story provided interesting contrasts.

Analysis of Selected Readings

The investigator assessed Tanya's and Justin's readings, using the Reading Miscue Inventory. The results of both miscue analyses were used to specify the scoring system for evaluating the subjects' descriptive assessments of the children's reading. The investigator's analysis of each child's performance was verified by a research expert in the use of the Reading Miscue Inventory.

Tanya generated some eight miscues per hundred words. She was an effective reader who made very good use of all cuing systems and strategies. Though hesitant at times, her retelling showed a good understanding of the characters and events of the story. Questioning by the coder clarified some details and elicited inferential information.

Justin's reading was more difficult to analyse than Tanya's. He made almost twice as many miscues as she did and appeared at first glance to be a much less efficient reader. However, despite a tendency to overuse graphophonic cues, he was able to make good use of the

syntactic systems and fair use of the semantic systems of language in his search for meaning. His predicting strategies were somewhat erratic. He attempted to correct many miscues and was overtly successful with about half of them; his retelling indicated that others were corrected sub-vocally. The retelling was hard to follow initially, but responses to questioning indicated that he knew the characters, had a general idea of the story and could make valid inferences.

Pretest

There were two pretest sessions, one for each child's taped reading and retelling. In each session the 20 subjects were given a script of the story, a transcript of the retelling and the following set of guidelines for the assessment:

Summarize what you know about this child as a reader. You should take the following points into consideration:

1. Evidence of the child's overall strengths and weaknesses.

2. The child's comprehension of the story just read.

3. Concern the child shows for meaning while reading.

4. The child's use of the grammatical system of the language.

5. The child's knowledge of letter-sound relationships.

Refer to specific examples of the child's performance to support your evaluation.

After listening to the tape, the subjects had two hours to write a descriptive assessment of the child's reading. Additional tapes were available on cassette recorders so that subjects could replay sections of the reading or retelling if they wished. The descriptive assessment of Tanya's and Justin's reading were scored by the investigator. Subjects were then divided into two groups of ten, matched on the basis of their pretest scores. To ensure a measure of scoring reliability for the pretest and posttest, a random sample of one assessment of each child was drawn from both groups of subjects. These four assessments were scored by two researchers experienced in miscue analysis and the results compared with the investigator's ratings.

Graduate Reading Program

One group of subjects (hereafter referred to as the RMI Group) was trained in the use of the Reading Miscue Inventory (Goodman & Burke, 1972). The other group (hereafter referred to as the RAG Group) used the Reading Appraisal Guide. Each subject received 16 hours' training, consisting of six two-hour group sessions and four hours of individual

conferences.

The RMI Group was trained in the use of the Reading Miscue Inventory, using the procedures followed by Y. Goodman (1979) and Watson (1979, 1982) in their in-service training courses for teachers of reading, and considered appropriate for graduate teacher education courses. The program was as follows:

1. Group Sessions:

    a. The Goodman model of reading was outlined and related to reading assessment.

    b. Gary's taped oral reading and retelling of "Space Pet", from the Reading Miscue Inventory kit (1972), was played to the group, who marked his miscues.

    c. The miscues were then coded.

    d. The retelling was assessed and scored.

    e. A reading profile of Gary's strengths and weaknesses was developed.

    f. Appropriate teaching strategies were recommended for him.

2. Assessment practicum:

    a. Each subject selected a child from his/her own or a local school and completed an independent assessment of the child's reading and retelling of a story, based on procedures used in the group evaluation.

    b. The investigator met with each subject at regular intervals to assist with the assessment and evaluate progress.

The RAG Group was given training in the use of the Reading Appraisal Guide. The program consisted of the following:

1. Group Sessions

    a. The Goodman model of reading was outlined and related to reading assessment.

    b. A number of reading assessment procedures were examined, discussed and compared with the Reading Appraisal Guide.

    c-f. Training in the use of the Reading Appraisal Guide was provided. Procedures were similar to those

indicated for the RMI Group sessions b-f.

2. Assessment practicum:
This was similar to the procedures indicated for RMI Group.

Posttest

The posttest was conducted under the same conditions as the pretest, using the same tapes. All subjects were again given two hours to write descriptive assessments of each child's reading. Both groups were allowed to refer to any material related to their training and practicum.

To ensure a measure of scoring reliability the interraters again followed the procedures used for the pretest.

Analysis of Data

EVALUATION CRITERIA. Criteria for the investigator's analyses of the two children's readings were drawn from the Goodmans' work and the manual of the Reading Miscue Inventory. These criteria, together with her analyses of the two readings, formed the bases of the investigator's qualitative evaluations of the subjects' descriptive assessments. A score was developed for each area of assessment to provide for the quantitative analysis. These are shown in Table 2.

The criteria are as follows:

1. Graphophonic System (20 points): the graphophonic system is essential for getting meaning from print, but it must be used selectively. Overreliance on phonic strategies and close graphophonic approximation of miscues indicate that readers are focussing on words rather than larger meaning units.

2. Syntactic System (20 points): use of the syntactic system is not sufficient in itself for the prediction of meaning. Readers will indicate by the use of inflections and ability to produce syntactically acceptable sentences, even when miscuing, whether they are using this system effectively.

3. Semantic System (30 points): the integration of graphophonic, syntactic and semantic cues allows readers to predict and confirm meaning. Readers' success in doing so is indicated by the ability to produce sentences which make sense in the context of the passage.

4. Comprehension (30 points): effective comprehension results from successful interaction between readers and text. Readers' success is indicated by the ability to recall and explain the characters, events, plots and themes in stories, both in unaided and aided retelling.

Table 2

Score Sheet for Marking Pretest & Posttest

Area	Points	Tanya	Justin
Graphophonic System			
1. % high, low, partial similarity	5		
2. Appropriate approximations	5		
3. Meaning/phonics emphasis	5		
4. Word orientation	5		
Subtotal	20		
Syntactic System			
1. Syntactic acceptability	10		
2. Inflections, rearrangements, omissions, insertions	4		
3. Self-correction	6		
Subtotal	20		
Semantic System			
1. Semantic acceptability	15		
2. Intonation	5		
3. Self correction	10		
Subtotal	30		
Comprehension			
1. Character	8		
2. Events, plot, theme	12		
3. Unaided retelling	5		
4. Questioning	5		
Subtotal	30		
Summary			
1. Total miscue pattern	10		
2. Comprehending/comprehension	10		
3. Awareness of strengths/weaknesses	10		
4. Building strengths	10		
5. Integration	10		
Subtotal	50		
Total	150		

5. Summary (50 points): evaluators should be able to assess readers' strengths and weaknesses with reference to both the pattern of miscues and the retelling. This information forms the basis for instructional strategies for building readers' strengths.

QUANTITATIVE ANALYSIS. The subjects' scores were used in group comparisons to discover whether the posttest scores of each group showed significant gains over the pretest scores and if so whether one group had made significant gains over the other group. Analyses of differences between the following scores were made:

1. RMI Group pretest and RMI Group posttest mean scores.

2. RAG Group pretest and RAG Group posttest mean scores.

3. RMI Group and RAG Group pretest-posttest gains.

QUALITATIVE ANALYSIS. This included an assessment of the subjects' expertise in the techniques used in either the Reading Miscue Inventory or the Reading Appraisal Guide, depending on which program they were in, and of their ability to interpret children's reading. The investigator also sought to gain insights into the subjects' perceptions of the reading process, any misconceptions they had and the emphasis they placed on different aspects of reading behavior. Finally, she attempted to assess whether any changes occurred in these during the programs.

Data for the qualitative analysis consisted primarily of the subjects' test record sheets and descriptive assessments. The investigator also kept a regular diary of anecdotal data from group sessions and individual conferences and recorded discussions with both groups after the posttest. In addition, the subjects' practicum assessments were analysed.

As Guba (1978) has shown, one of the advantages of ethnographic research is that the researcher may obtain valuable and often unanticipated insight by selecting relevant data from broad observations.

Results

The investigator used both quantitative and qualitative analyses to determine whether in-depth training in the use of the Reading Miscue Inventory enabled the RMI Group to carry out more effective evaluations of children's reading and retelling of a story than training in the Reading Appraisal Guide enabled the RAG Group to do. Results showed that the RMI Group as a whole performed significantly better in the posttest than in the pretest, while the RAG Group did not.

Interrating Procedures

To ensure a measure of scoring reliability in the pretest, four random samples were drawn from the subjects' assessments of Justin and Tanya's reading. These were rescored by two interraters experienced in miscue analysis, and the results compared with the investigator's ratings.

The Direct Difference Method, a two-tailed t-test for repeated measures, was used to discover whether there were significant differences between the investigator's ratings and those of either interrater. The differences were not significant at the .05 level. Similar procedures were undertaken for the posttest. Again, differences between the investigator's ratings and those of the two interrators were not significant.

It was therefore concluded that the investigator's scoring of pretest and posttest was reliable.

Table 3 RMI Group

Comparison of Pretest and Posttest Scores

Subjects	Scores		* p <0.05
	Pretest %	Posttest %	Difference %
1. RA	12	28	16
2. IB	18.3	46.7	28.4
3. JB	47	67.3	20.3
4. JC	43.3	43.3	-
9. RJ	23	52	29
10. EL	15.7	28.3	12.6
11. CMcC	19.7	42.3	22.6
13. RMcK	18.3	19.3	1
15. JN	60.7	56.3	-4.4
17. VR	25.3	29.3	4
Mean % Score	28.33	41.28	12.95*
(SD)	16.9	14.99	

Quantitative Comparison of Pretest and Posttest: RMI Group

Table 3 compares each RMI subject's mean percentage scores on the Pretest and Posttest. The overall mean gain for the group was 12.95% though individual gains varied.

Figure 1 shows the differences between the RMI Group's mean percentage scores in the pretest and posttest in graphic form.

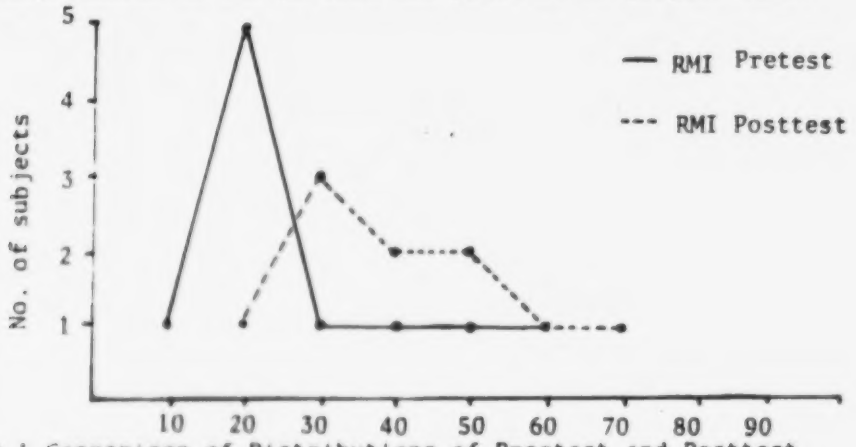


Figure 1 Comparison of Distributions of Pretest and Posttest Scores (RMI Group)

The difference between the pretest and posttest mean scores for the RMI Group was significant at the .05 level.

Quantitative Comparison of Pretest and Posttest: RAG Group

Table 4 compares each RAG subject's mean percentage scores in the Pretest and Posttest. The Group's mean gain was 1.67%. Some made very large gains while others showed equally large losses. The remainder varied little between Pretest and Posttest.

Figure 2 shows that distributions of scores in pretest and posttest are similar, with only an insignificant gain in theposttest mean percentage scores.

The difference between the pretest and posttest mean scores for the RAG Group was not statistically significant.

Qualitative Comparison of Pretest and Posttest: RMI Group

The posttests for the RMI Group were measurably superior to the pretests. Subjects demonstrated that they were able to carry out the miscue analysis procedures although their assessments in many cases still reflected inaccuracies in marking and coding of miscues and

calculating percentage scores. For example:

saw was marked as saw or saw

A second type of error consisted of making self-corrected miscues as insertions. For example:

more loudly than before was marked as: one more loudly than before

Oh look! was marked as: look oh look!

These reduced the proportion of self-corrected miscues in the children's scores and thus affected the subjects' assessments of their reading strategies.

Table 4 Comparison of Pretest and Posttest Scores. (RAG Group)

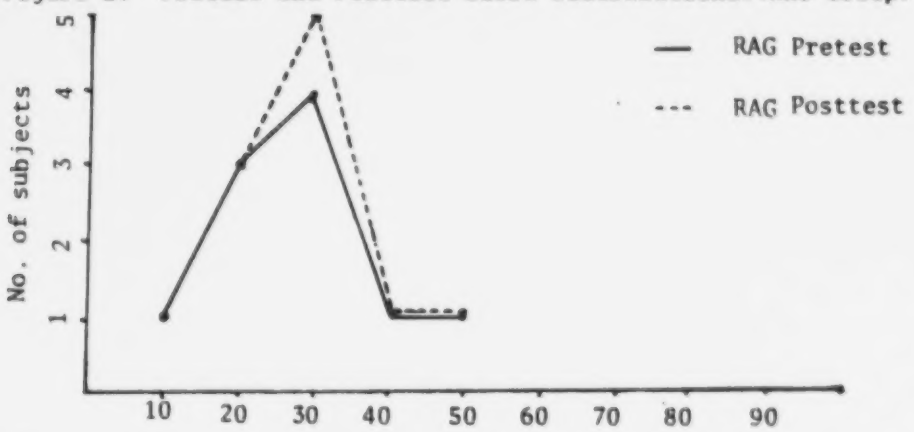
Quantitative Comparison of Pretest and Posttest

Table 4. Comparison of Pretest and Posttest Scores

(RAG Group)

Subjects	Scores		SN*
	Pretest %	Posttest %	Difference %
5. SC	30	30	-
6. WE	24.7	24.7	-
7. KG	28.3	27.3	-1
8. JG	24.7	29.3	4.6
12. HMcG	38	24.7	-13.3
14. LM	12	26.7	14.4
16. JR	52	52.7	.7
18. LS	26	37.3	11.3
19. IW	20	32.7	12.7
20. MW	30	17	-13
Mean % Score	28.57	30.24	1.67*
SD	10.68	9.55	

Figure 2. Pretest and Posttest Score Distributions.(RAG Group)



The relative importance of graphophonic, syntactic and semantic cuing was better understood in the posttest than in the pretest. The overemphasis on graphophonics seen in the pretest was largely corrected. Syntactic cuing, which was generally ignored in the pretest, was better assessed in the posttest. However, a number of subjects appeared unsure of the nature of Grammatical Function Similarity and the reasons for coding it. Semantic cuing was better handled in the pretest than the other cuing systems, and improvement was therefore less marked in the posttest.

Of the reading strategies, self-correction was the most effectively assessed in both pretest and posttest, but in the latter there were more attempts to relate it to syntactic and semantic acceptability. Only two subjects integrated the three strategies well in both pretest and posttest. Others showed awareness in the posttest that they should be discussing prediction and confirmation, but could not do much more than name the strategies.

Punctuation and fluency preoccupied subjects in the pretests; in many cases it was not clear whether they thought the children ignored, or were ignorant of, punctuation or whether errors were the cause of result of misunderstanding the text.

Assessment of the retellings did not change markedly. There was continued emphasis on events rather than characters. Plot and theme were discussed only in the posttest, where there was somewhat less emphasis on fluency and more on the content of responses.

The subjects' ability to integrate their findings and summarize strengths and weaknesses improved noticeably during the RMI program. All learned to assess patterns of miscue analysis and compare comprehending and comprehension ability. Overall, there was less emphasis on deciphering words and more on understanding the story in the posttest. However, interpretations still tended to be brief and not well supported by examples.

A much higher proportion of subjects recommended teaching strategies in the posttest. Suggestions included extending reading in interest areas, and a range of meaning-oriented activities. This contrasted with the pretest preoccupation with elocution and phonics skills.

This group always believed in the importance of reading for meaning, although not all subjects stressed it very strongly in the pretest and a number initially leaned towards traditional skills-based teaching approaches. The posttest showed a sharpening of focus on particular aspects emphasized in the Goodman model of reading rather than a change of attitude towards the purpose of reading. There was also a move towards meaning-oriented strategies for testing and teaching. In both pretest and posttest there were many misconceptions and misinterpretations. Most subjects produced better analyses of Tanya, a good reader and reasonably easy to assess, than of Justin, whose reading required more sophisticated interpretation.

Qualitative Comparison Between Pretest and Posttest: RAG Group
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The RAG Group's posttests did not show significant overall improvement in comparison with the group's pretests. The subjects apparently understood the format of the instrument they used and almost all were easily able to carry out the procedures in the time alloted with variable effectiveness. In the posttest the emphais on reading for meaning was even stronger than in the pretest: it was stressed by all subjects, instead of only two-thirds of them. However, not all were clear as to how readers could best gain meaning from the text.

The subjects improved their ability to identify miscues correctly but coding was variable and indicated some uncertainty as to what was meant by "Language Structure". Because self-corrections are not counted, the Reading Appraisal Guide tends to give a depressed picture of the reader's strengths and weaknesses in the areas of Language and Meaning. Few subjects were enough aware of this to compensate for it in their assessments or explain why the RAG scores were not giving a true picture of the students' abilities.

In the pretest subjects tended to overemphasize the importance of graphophonic cuing. Since miscues are not coded for graphophonic approximations in the RAG, several subjects ignored this area in the posttest. Syntactic cuing, which was largely ignored in the pretest, was better evaluated by most subjects in the posttest, although several underestimated Justin's strengths. Semantic cuing was the most effectively assessed of the three systems. However, even in this area, there was a tendency to underestimate the children's strengths, particularly in Justin's case.

The importance of self-correction as a strategy was emphasized by all subjects in both pretest and posttest. In the former, comment was general, but in the latter several subjects discussed Tanya's specific strengths in language and meaning correction, and noted Justin's

language corrections. Prediction and confirmation were commented on in the pretest, often in different terms, but in the posttest only two subjects attempted to discuss them in any detail. No suggestions for the assessment of these strategies are given in the RAG Manual.

Assessment of comprehension was the subjects' strongest area in both pretest and posttest. In the latter, more attention was paid to characters, and plot and theme were discussed as well as events. Assessments in the pretest were variable, but in the posttest there was an overall tendency to upgrade Tanya and downgrade Justin.

Most subjects attempted summaries in the pretest. All did so in the posttest, but the standard was still not high overall. In the pretest the few who suggested means for building strengths emphasized teaching subskills, especially word attack skills, and only two mentioned comprehension. In the posttest almost all of the subjects made specific recommendations. Those whose views were in keeping with the Goodman model of reading suggested that Tanya only needed extension and encouragement, and that Justin could be given easier material and taught meaning-oriented strategies to counter his dependence on sounding out words. However, several suggested exercises to improve Tanya's already excellent semantic cuing and Justin's above-average syntactic cuing. As previously indicated, they may have been misled by the RAG scoring system as much as by poor interpretive skills.

Quantitative Comparison of Posttest (RMI Group and RAG Group)

Since its purpose is to discover whether teachers using the Reading Miscue Inventory would make better assessments of children's reading than those using the Reading Appraisal Guide, a comparison of their respective performances on the posttest is central to this study.

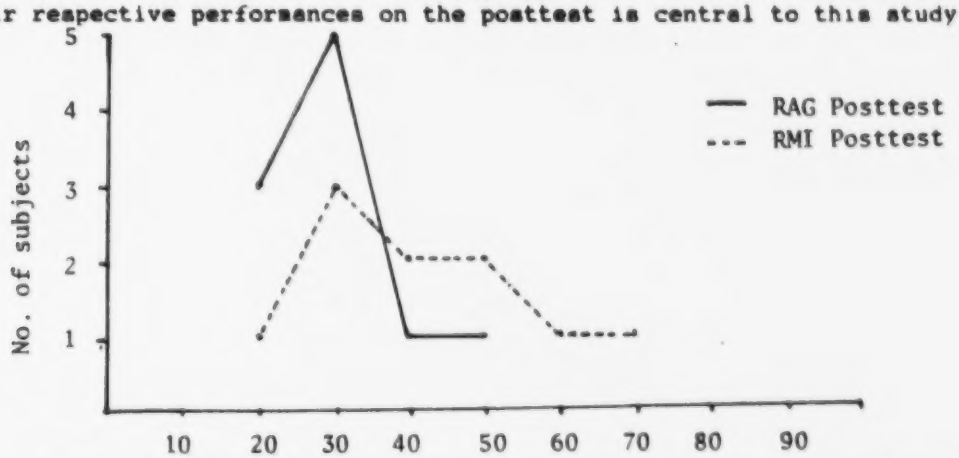

Figure 3 compares the RMI and RAG Groups' Posttest distribution of scores. The RMI Group's superior mean percentage gains can be seen. The reader can refer to Tables 3 and 4 for individual scores in pretest and posttest.

Table 5 Breakdown of Pretest and Posttest Scores (RMI and RAG Groups)

Category	Max. Pts.	Pretest Mean Pts.	Posttest-RMI Mean Pts.	Posttest-RAG Mean Pts.
	(1)	(2)	(3)	(4)
Graphophonic	20	6.2	8.7	4.6
Syntactic	20	4.25	8.55	5.85
Semantic	30	10.35	11.95	9.7
Comprehension	30	10.3	12.85	11.5
Summary	50	11.6	19.9	13.7
Total Pts.	150	42.7	61.95	45.35

Table 5 gives a breakdown of scores into the average number of points gained in the five main categories of assessment in the pretest, and in the RMI Group posttest and the RAG Group posttest.

It can be seen that the RMI Group made gains during the program not only in the overall scores but also in each selection of the assessment. The RAG Group made gains in three sections and losses in two.

Qualitative Comparison of Posttests (RMI Group and RAG Group)

The RMI Group required noticeably more time to complete the posttest than the RAG Group. Most needed the full 2 hours to complete their assessments and some were not able to finish. In contrast, subjects in the RAG Group completed their assessment of Tanya in an average time of one hour and with one exception, were able to complete Justin in about an hour and a half.

Amounts written were similar across the two groups, being approximately 400-450 words, with a slight tendency for subjects to write more about Tanya. As expected, the RMI Group took longer than the RAG Group to complete test record sheets. Both groups found Justin more difficult to assess than Tanya and tended to downgrade him.

MARKING AND CODING. Despite the more complex nature of these tasks in the Reading Miscue Inventory, posttest standards were similar across the two groups, although they differed considerably within each group. Most subjects appeared to understand their respective systems, but could not yet use them accurately. The RAG Group, who were dealing with a simpler system, understandably made fewer errors in calculating and transferring percentage scores.

THE CUING SYSTEMS. Between-group differences were most noticeable in the areas of graphophonic and syntactic cuing where the RMI Group performed considerably better. However, in the more important area of semantic cuing, the two groups were closer together. Performances within each group varied coniderably.

In both groups less emphasis was placed on the graphophonic cuing for graphophonic approximations and four subjects ignored them completely. With a few exceptions the RMI Group showed a better understanding of this system's relative importance. Most realized Tanya's strengths but were divided over Justin's use of the system to gain meaning in his reading.

Both groups showed a better understanding of the importance of language structure by paying more attention to syntactic cuing than in the pretest. However, it is evident that some of the RAG Group were uncertain about the exact meaning of "language" as used in their assessment instrument and the RMI Group were unsure of Grammatical Function Similarity. While some members of both groups discussed the children's strengths and weaknesses in some detail, others were content to give percentage estimates and make brief comments. The RMI Group was aware of Tanya's strengths but tended to underrate Justin, while the RAG Group tended to underrate them both.

Semantic cuing was best understood of the systems in both pretest and posttest. Again, Tanya was better assessed by the RMI Group, and the RAG Group tended to underrate her. Members of both groups were inclined to make exaggerated comments about Justin's weaknesses.

THE STRATEGIES. These were somewhat less well handled than the cuing systems, with the exception of self-correction. All subjects showed an understanding of the importance of this strategy in the search for meaning. However, scoring was affected by marking and coding errors, particularly in the RMI Group, who were using a more complex system. Both groups tended to underestimate the percentages of corrected miscues. In both groups, several noted Tanya's successful corrections for syntactic and semantic acceptability, but inaccurate scoring and flaws in the RAG caused some to believe that her self-correcting strategies were inadequate, despite textual evidence to the contrary. Most subjects failed to note Justin's good syntactic corrections, and several in each group commented on his lack of success in correcting for meaning and lack of self-correction strategies. Yet he tried to correct many miscues and was successful in almost half of his attempts.

Though a few subjects in both groups discussed prediction and confirmation strategies perceptively, most did not even mention or refer to them.

COMPREHENSION. In this area the two groups were closest. Their scores did not differ greatly between pretest and posttest, and comments tended to be brief.

In both groups, understanding was emphasized by all subjects. There was still relatively little comment on character, but plots, themes and events were discussed. Both groups tended to overestimate Tanya's retelling, which was good but not exceptional. The RMI Group's estimates of Justin's retelling were generally fair, but the RAG Group was inclined to downgrade him.

SUMMARY. All subjects who completed the assessments attempted to summarize information in the posttest. All stressed meaning to at least some degree. Overall, the RMI Group's performance was superior to that of the RAG Group.

Almost all the subjects suggested activities for building Tanya's strengths. Though some realized that she only needed extending and encouraging, several RAG subjects were unnecessarily concerned with her expression, i.e., teaching her to read more slowly and recognize punctuation marks, or erroneously believed she needed cloze exercises to improve her self-correction skills. Overall, the RMI subjects appeared to have a better understanding of Tanya's needs.

Subjects in both groups discussed teaching strategies for Justin and several suggested useful strategies to help him gain meaning. Both groups were divided over whether he should be encouraged to continue using the graphophonic cuing system in conjunction with the other systems, or persuaded to abandon it. Two of the RMI Group wanted to give him plenty of practice in word attack skills, which was not indicated from his reading performance. Some in both groups wanted to improve his syntax - one of his areas of strength. Both groups seemed to encounter difficulties in assessing Justin's needs.

Anecdotal Data

In addition to the pretest and posttest the investigator had three sources of information on the subjects' ability to use miscue analysis techniques and their assumptions concerning reading. These consisted of spontaneous verbal comments made by subjects during the program, informal discussions with both groups at the conclusion of the program, and practicum assessments carried out during the program.

SPONTANEOUS VERBAL COMMENTS. The investigator noted comments made by the subjects during the group sessions and individual conferences. These mainly concerned changes that the program had made in their ideas about reading, and the two instruments' usefulness for giving them insights into children's reading.

The RMI Group produced the most comments and were generally the more approving of the instrument they were using. Most of them stated that their understanding of reading had improved. "It really makes you

see what reading's all about" was a typical statement.

When discussing the RMI's practical usefulness, they expressed qualified approval. Time was a major concern. "It's time-consuming but I can't see any better way of assessing reading. It's the only one that looks at all aspects," said a primary teacher. Several subjects found RMI procedures complicated and had difficulty learning them in the limited time allowed. The RAG Group, on the other hand, tended to complain more about ambiguities and lack of detail in the instructions, particularly for the retelling.

Teachers of retarded children felt that many of their pupils could not read enough to provide material for any form of miscue analysis. As one said "A lot of them can't even talk properly, let alone read".

The structured preliminary interview in the RAG was approved for providing input about the reader's language and helping to establish rapport. One subject voiced the need for similar procedures in the RMI.

GROUP DISCUSSIONS AFTER THE POSTTEST. Discussions with both groups after the posttest reinforced earlier comments. The RMI Group felt that there had not been enough time to cover and revise procedures for testing and link them with the underlying reading model. Both groups would have preferred more feedback on their practicum assessments. This could well have prevented errors made in the posttest.

The RAG Group were concerned about unclear instructions. Most had not realized that their scoring system underestimated readers' abilities.

Both groups reiterated that the program had given them greater understanding of the reading process, but they needed further practice in assessment.

PRACTICUM ASSESSMENTS. These reinforced the results of the pretest and posttest. Most of the RMI Group took about 15-20 hours to complete assessments while the RAG Group took about half that time. These surprisingly long times were due in part to lack of familiarity with procedures, nervousness, and the need to write formal descriptive assessments, which teachers do not usually do. Because the RAG's preliminary interview was included in the text, the RMI Group also included pretest conversation to establish rapport in their total time.

Overall, the RMI practicum assessments were superior to those of the RAG. Within group variations were considerable, probably because of the variety of readers chosen. Three of the RMI Group and one of the RAG Group who were unable to complete their posttests carried out satisfactory practicum assessments.

The RMI Group performed in their practicum assessments much the same as the posttest. The RAG Group tended to perform somewhat better

in the practicum than in the posttest. The investigator's help and additional information gained from interaction with their pupils during the interview and testing may have increased the RAG Group's intuitive awareness of their pupil's reading ability and countered the effects of misleading RAG scores.

Generalizabilty of Results

The investigator and the subjects of this study are Australian by birth or adoption, currently working within the Victorian education framework. The reading climate in Victoria differs from that found in many parts of the United States, and subjects teachers to different influences. Hence their reaction to the Goodman model of reading, miscue analysis and the training programs carried out in this study may not be generalizable for North American situations. The purpose of the following discussion is to allow North American readers to make the necessary adjustment for differences in educational climate.

A survey of recent publications from the Victorian Education Department and its various agencies, perusal of recent educational journals, school curriculum statements and conference reports provide a broad indication of what educators are saying and doing about reading in that state.

Among the most quoted authors in the reference lists of the above sources one finds the following: Mark Brennan, Marie Clay, Brian Cambourne, Kenneth and Yetta Goodman, Donald Graves, Don Holdaway, Barbara Johnson, Des Ryan and Frank Smith. These educators all have a holistic view of reading. They advocate learning to read and write in meaningful contexts, and favor the language experience approach, individualized reading and the discovery method of writing. These views contrast with the focus on skills-based teaching strategies prevalent in many parts of North America.

The annual epidemics of standard testing that characterize United States school districts do not occur in Victoria. Standardized achievement tests are sometimes used for initial placement, but teachers and reading consultants tend to prefer informal assessment.

However, the means used often indicate a confused rationale. They may consist of a jumble of word lists, phonics tests and cloze exercises or short, graded prose passages followed by questions. Some teachers apparently believe that it is only necessary to listen to children read, without having a very clear notion of what they are listening for.

Many Victorian teachers favor the Goodman model of reading and have some knowledge of miscue analysis techniques but have consigned the Reading Miscue Inventory to the "too hard" pigeonhole. It is therefore not surprising to find that, as in the United States, simplified forms have appeared. Two of these, the BRIM (Brennan Record for the Interpretation of Miscues) and the RAG (Reading Appraisal

Guide) are quoted in the reference lists of a number of popular texts on reading, and have modest but steady sales. They are described briefly in Table 1.

Conclusions

Both quantitative and qualitative analysis of the data provided an answer to the main question posed in this study by showing that subjects trained in Miscue Analysis, as reflected in the Reading Miscue Inventory, were able to make significantly better assessments of the children's reading ability than subjects trained in the Reading Appraisal Guide.

Relative Effectiveness of the Two Instruments

Although the Reading Miscue Inventory is more complex than the Reading Appraisal Guide, this study showed it to be the superior instrument for two reasons: firstly, the RMI manual provides clearer and more detailed instructions and examples to help subjects administer and score readings and retellings, and interpret information gained from them; secondly, the information gained is more closely related to aspects of the reading process emphasized in the Goodman model of reading. It requires time and perseverance to learn to use the RMI effectively, but no more than are needed for other specialized diagnostic instruments such as the Illinois Test of Psycholinguistic Abilities and the Wechsler Intelligence Scales.

Miscue analysis can be a confusing technique for inexperienced users. Subjects in both groups and demonstrable difficulty identifying miscues and deciding how they should be marked, coded, and interpreted. The variety of conclusions they reached concerning the same miscues indicated how differently even qualified and experienced teachers respond to the same kinds of information. They need careful training in order to be able to make fine discriminations necessary for miscue analysis.

The Reading Appraisal Guide is a simplified form of the RMI and therefore quicker to use. However, the short cuts are often achieved at the expense of precision and depth. Inadequate instructions and attempts to elimate or combine RMI questions can result in misinterpretations. In addition, the scoring system tends to downgrade readers' ability. The investigator believes that these flaws contributed to the RAG Group's disappointing performance in the posttest.

Recommendations Concerning the Two Instruments

The following recommendations are made for the Reading Miscue Inventory and the Reading Appraisal Guide. They are based on the subjects' comments and the investigators' observations made during the

program.

The Reading Miscue Inventory

1. Pretest Interview: more detailed suggestions for creating a comfortable climate and discovering readers' attitudes to reading could be given by expanding the Guide (Goodman & Burke, 1976, p. 5).

2. Coding Graphophonic Approximation: the manual should include more examples of words with only one or two parts.

3. Coding Dialect and Repeated Miscues: separate instructions for dealing with these should be included for Section I.

4. Coding Grammatical Function: some teachers need a fuller explanation of this item. Examples in the manual (Goodman & Burke, 1972, pp. 56-57) could indicate the functions of both "Reader" and "Text" words that are compared. For teachers with limited knowledge of linguistics, this section is probably better omitted.

5. Coding Syntactic and Semantic Acceptability (Section I): coding a maximum of 50 sentences should provide sufficient information for miscue analysis. Y. Goodman's contention (1983) that 75 sentences can be coded quickly and easily did not prove to be true for subjects in this study.

6. Coding for Meaning Change: the category should be renamed Meaning Retained so that, in line with Syntactic and Semantic Acceptability, "Yes" will indicate an acceptable miscue (in which the author's meaning is retained) and "No" an unacceptable miscue. Y. Goodman (1983) believes that reversing this order makes coders stop and think. The investigator found it only confused her subjects.

7. Coding Prediction and Confirmation Strategies: fuller instruction could be given for assessment of prediction and confirmation strategies from information gained in Sections I-III, in order to draw teachers' attention to these important areas. Spaces on the Summary and Profile Sheet could be provided for brief indications of readers' performance.

8. Coding Sheet Format: for greater ease of scoring, the coding sheets for Sections I, II, and III should allow for coding of 25 miscues/ sentences per page instead of the present 22/23. (Y. Goodman and Burke, 1976).

9. Summary & Profile Sheet: the Terms Yes/Partial/No used on the coding sheets should be used consistently throughout the text, and variations such as High/Same and Some/Minimal avoided. Calculation of M.P.H.W. (miscues per hundred words) could also be added to the Profile instead of appearing on a separate sheet. (Y. Goodman & Burke, 1976).

10. Integration and Summary: the focussing questions set out below are designed to help teachers summarize information gained from their analysis of the reading and retelling of a story. They are based on the investigator's Evaluation Criteria (see Chapter 3) and questions in the manual (Y. Goodman & Burke, 1976, p. 23).

a) How well do readers integrate graphophonic, syntactic and semantic cues in their search for meaning?

b) How well do readers predict, correct and confirm meaning during reading?

c) Do patterns of miscues that are not coded relate to meaning gain? (anticipations, dialect, repeated miscues)

d) How well do readers retell stories and what further information do probing questions elicit?

e) What does a comparison of readers' comprehending and comprehension scores tell about their reading ability?

f) What recommendations should be made for building readers' strengths?

The Reading Appraisal Guide
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1. Marking the Miscues: instructions should be more detailed.

2. Coding Graphophonic Approximations: instructions should be provided for estimating readers' use of this cuing system.

3. Coding Language Retained/Lost: this too-broad category attempts to combine Syntactic Acceptability and Grammatical Function. It should be based on Syntactic Acceptability alone. Instructions for coding need to be more precise.

4. Coding Meaning Retained/Lost: this category should refer specifically to the author's meaning in the passage, and not attempt to include Semantic Acceptability.

5. Coding Prediction and Confirmation: these strategies should be specifically included in the assessment of readers' abilities.

6. Scoring: readers' initial and final versions of the text

should be scored in order to include self-corrections.

7. Retelling: directions for outlining, scoring, and questioning need to be more detailed.

8. Case Studies: guidelines should be provided for writing case studies, in addition to the present examples.

9. Suggestions for improving reading strategies: these need to be better organized and more closely related to assessment areas.

The investigator does not consider that the use of the Reading Appraisal Guide in its present form is advantageous for teachers. However, carrying out the modifications suggested may reduce its alleged advantages of speed and simplicity and cause it to resemble its parent to such an extent that there would be little point in using it instead.

Effects of the Program on the Subjects

In an effective teacher training program miscue analysis and the concepts underlying it must be taught in an integrated fashion. An understanding of the Goodman model of reading is necessary if miscue analysis is to be a meaningful exercise, (Y. Goodman & Burke, 1972). In turn, practicing the technique gives teachers a better grasp of what is involved in the reading process by enabling them to make carefully structured observations of its operation in individual readers. With this knowledge they can develop strategies for helping readers to gain meaning from print and can also continue to improve their own understanding of the reading process.

Except for the actual assessment instruments, the RMI and RAG programs were similar in almost every way: instructor, venue, training period, teaching methods and the model of reading upon which they were based. The investigator, therefore, concluded that the RMI Group's performance was superior to that of the RAG Group in practicum and posttest because the RMI Group were using the better instrument.

The long-term effects of this study's programs on the subjects who took part in them will depend on a number of factors:

1. The subjects' acceptance of the reading model underlying both instruments.

2. The subjects' competence in the use of their instruments.

3. The degree to which subjects continue to use the instruments.

4. The degree to which subjects' future teaching strategies are influenced by their knowledge of miscue analysis and the concepts on which it is based.

SUBJECTS' VIEWS OF READING. Studies quoted earlier in this paper (Steinruck, 1975; Feely, 1977; Geissel & Knafle, 1978) indicate that training teachers in miscue analysis strongly affects their beliefs about reading. This belief is borne out by the present study. The subjects were well-disposed towards the Goodmans' work when they commenced the program, but lacked detailed knowledge of miscue analysis and the model of reading that underlies it. The investigator believes that increased adherence to the Goodman model and improved understanding of reading were demonstrated as the program continued. Use of miscue analysis appeared to focus subjects' attention on different aspects of reading; initially they tended to believe that good elocution led to good comprehension, and that the latter could be brought about by corrective training in word attack skills, punctuation, sight vocabulary and reading speed. As the program progressed the general focus swung to syntactic and semantic cuing, discriminating self-correction, and use of context clues as aids in the search for meaning. There was also increased stress on providing readers with interesting and challenging material.

Both groups felt they had gained insights from the programs. However, the RMI Group's comments were somewhat more favorable, and they demonstrated views of reading that were rather more compatible with the Goodman model than those of the RAG Group.

SUBJECTS' COMPETENCE IN MISCUE ANALYSIS. From the results of the posttest, supported by those of the practicum assessments, it appears that the RMI Group are able to use miscue analysis procedures to assess children's reading ability although most of them need further practice. The same is true of the RAG Group, but their assessments showed a less balanced and accurate view of readers because they had to use an over simplified form of miscue analysis.

It would seem that the best solution for the subjects is to spend more time in learning to use the more complex but also more effective instrument and practicing it in their teaching situations. The study also highlights the subjects' need for training in linguistics. Teachers of written and spoken language must have that base if they are to understand the language they are supposed to help children use more effectively.

SUBJECTS' FUTURE ASSESSMENT OF READING. Of the two instruments, the more complex one provided more accurate, in-depth insights into readers' strengths and weaknesses for those who were able to use it efficiently. It is therefore more likely to be used than the simplified version.

However, there are two factors not necessarily related to their enthusiasm for the method which are likely to influence subjects' future use of the Reading Miscue Inventory: their pupil populations and the time available for reading assessment.

Practitioners of miscue analysis rely on readers generating at least 25 miscues while reading a passage aloud. This means that

readers often have to get through several pages of print. Such a task appears to be beyond the ability of some children, although much depends on the text used, the difficulty level, the relationship of content and readers' language experiences, and the inclusion of clues such as pictures. Subjects working with children who have limited language and can read very little were doubtful about the usefulness of the RMI or the RAG in their settings. Those in mainstream schools were more enthusiastic.

The investigator believes that the Reading Miscue Inventory has more subtle uses than most subjects realized. Teachers who have learned from its use to make in-depth assessments of reading can employ it informally in intuitive assessments by not interrupting children's oral reading, by discriminating between high and low quality miscues, and by more discerning probing of readers' understanding of what they have read. A number of educators have already drawn attention to this (Y. Goodman, 1976, 1978; Watson, 1982), and the more experienced teachers in the RMI Group were aware that they did not always need to carry out formal coding to assess various aspects of children's reading ability.

One of the main reasons why so many modifications of the Reading Miscue Inventory have appeared is that the time needed for administering, scoring, and interpreting it has been seen as a major disadvantage, particularly for inexperienced teachers.

Y. Goodman (1983) stated that it takes one hour for an experienced teacher to complete a miscue analysis, but for subjects involved in this study it was a much longer process. How proficient they will become and whether they will find time in their busy schedule to use the technique is not clear. What is strongly indicated is that, for reasons already given, at least one attempt to make miscue analysis a speedier process has not been very successful.

SUBJECTS' FUTURE TEACHING STRATEGIES. Training in the development and implementation of teaching strategies could not be included in the study's relatively short program, so its effects on subjects' future teaching behaviors can only be inferred.

Evidence from studies quoted earlier (Graham & Hudson, 1978; Mitchell, 1978; DeFord, 1982) suggests that teachers' beliefs about reading strongly affect their teaching methods. The investigator believes that both groups' commitments to the Goodman model of reading are strong and will persist.

Their recommedations for building readers' strengths showed a noticeable trend towards meaning-oriented activities which promised well for their future behavior. Yet it is a big step from internalizing ideas in a college course to operationalizing them in normal teaching settings. Subjects will need time to consider the knowledge they have acquired, and must decide for themselves how it can be adapted to their particular situations.

Recommendations for Graduate Reading Programs

The investigator's recommendations are as follows:

1. The Goodman model of reading is appropriate for teachers undertaking graduate programs in reading.

2. The Reading Miscue Inventory should be used rather than the Reading Appraisal Guide for enabling teachers to improve their understanding of the reading process and their ability to assess children's reading.

3. Teachers need to have a basic knowledge of descriptive linguistics before undertaking training in miscue analysis.

4. Graduate programs in reading could follow the lines of the program for the RMI Group, with the addition of a section on the development and implication of teaching strategies.

5. Sufficient practice in assessment and teaching strategies is essential. Programs should provide for preliminary group assessment of taped readings before subjects attempt to work with real, live children. Practicum assessments should be returned before the final group sessions, in which results should be related back to the underlying model and forwarded to relevant teaching strategies. Opportunities for putting the teaching strategies thus developed into practice should also be provided.

Implications for Future Research

This study has indicated that the 1972 Reading Miscue Inventory would benefit from some modification. However, further research is needed before definite conclusions can be drawn concerning the possibility of making miscue analysis an easier process while retaining its effectiveness as an assessment measure. Future studies could include comparisons of the effectiveness of the revised Reading Miscue Inventory (Y. Goodman & Watson, in preparation) with other simplified forms of miscue analysis, for different groups of teachers with different instructors. Assessments of the long-term effects of such programs on subjects' beliefs and practices are also needed.

Finally, both qualitative and quantitative analyses proved useful for evaluating the data collected in this study. The former was the more difficult to handle, but in the long run, it has provided the most interesting insights.

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